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Two-Stage Denitration (1)

Trials on the two-stage denitration (2) were continued. In a first fermenter, running at dilution rates of 0.13 hr^{-1} or 0.24 hr^{-1}, a total denitration was achieved using the minimal amount of sugar. The denitrated extract, containing also the yeast cells, was mixed with untreated extract without additives. This mixture was fed into a second fermenter at a dilution rate of 0.1 hr^{-1}. The results are presented in the table below :

Table 1 : Two-Stage Denitration at Different Dilution Rates and Percentages of Treated Extract

D (hr^{-1}) first fermenter	Feed into the 2nd fermenter		Final denitration %	Sugar * saving %
	Denitrated extract %	Untreated extract %		
0.13	50	50	71	21
0.13	25	75	36	11
0.13**	50	50	81	31
0.24	50	50	66	16
0.24	75	25	89	14
0.24	25	75	28	3

* Percentage of nitrate that has been assimilated without adding extra sugar.

** Fed Batch System in the second fermenter. The fermenter was emptied totally as soon as it was full.

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The results indicate that, at a higher dilution rate in the first fermenter, the additional nitrate removed is lower. The best results were achieved using a 50 : 50 ratio of denitrated : non denitrated extracts. As reported earlier (2) a fed batch system in the second fermenter gave better results than a normal continuous system, although the quantity of the extract treated per time is the same.

Further trials will be concentrated on a 100% denitration by supplying the first fermenter with insufficient amounts of sugar and completing the denitration in a second one.

REFERENCES

(1) Berney-J., Notebook 800802, p. 48-50.

(2) Schulthess-D., Monthly Report, Biotechnology, March 1981.

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